### Chapter 18: Ischemic Heart Disease: Chronic Stable Angina: An Uphill Battle Level III

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## LEARNING OBJECTIVES

After completing this case study, the reader should be able to:

Identify modifiable risk factors for ischemic heart disease (IHD), and discuss the potential benefit to be gained by their modification in an individual patient.

Optimize medical therapy in a patient with persistent angina considering response to current therapy and the presence of comorbidities.

Assess clinical response to antianginal therapy by identifying relevant monitoring parameters for efficacy and adverse effects.

## PATIENT PRESENTATION

### Chief Complaint

“Doc, these drugs just aren’t working for my chest pain anymore.”

### HPI

Jack Palmer is a 72-year-old man with coronary artery disease. He is an avid golfer and prefers to walk the course, but this is becoming progressively more difficult for him due to frequent angina. He has had two coronary artery bypass operations in the past. A coronary angiogram performed 1 month ago revealed significant disease in the RCA proximal to his graft, but this was considered high risk for angioplasty. His dose of isosorbide mononitrate was increased at that time from 60 to 120 mg once daily. This had no effect on his angina. He is still using about 30 nitroglycerin tablets a week, and these do relieve his chest pain. He reports that most often the chest discomfort comes on with activity, such as walking up slight inclines on the golf course. The discomfort is located in the center of his chest and rated 3–4/10 on average. He reports that the

chest discomfort slowly fades as he slows his activity. He also complains of occasional lightheadedness with a pulse around 50 bpm and SBP near 100 mm Hg.

## PMH

1. Acute anterior wall MI with CABG surgery in 2009
2. Posterior lateral MI in 1990 and PTCA to the circumflex at that time
3. Dyslipidemia
4. Chronic low back pain
5. Depression

## FH

Noncontributory for premature CAD.

## SH

Retired dairy farmer, lives with wife, drinks occasionally, previous smoker—quit in 1998

## Meds

Carvedilol 6.25 mg PO twice daily

Lisinopril 5 mg PO once daily

Aspirin 325 mg PO once daily

Isosorbide mononitrate, extended release 120 mg PO once daily

Diltiazem, extended release 240 mg PO once daily

St. John’s wort 300 mg PO three times daily

Celecoxib 200 mg PO once daily

Simvastatin 40 mg PO once daily

Nitroglycerin 0.4 mg SL PRN

## All

NKDA

## ROS

No fever, chills, or night sweats. No recent viral illnesses. No shortness of breath; occasional cough with cold weather. No nausea, vomiting, diarrhea, constipation, melena, or hematochezia. No dysuria or hematuria. No myalgias or arthralgias.

## Physical Examination

### Gen

Pleasant, cooperative man in no acute distress

### VS

BP 105/68, P 50, RR 22, T 36.4°C, Ht 5′11″, Wt 93 kg, waist circumference 43 in

### Skin

Intact, no rashes or ulcers

### HEENT

PERRL; EOMI; oropharynx is clear

### Neck

Supple, no masses; no JVD, lymphadenopathy, or thyromegaly

### Lungs

Bilateral air entry is clear. No wheezes

### CV

RRR, $S_1$, $S_2$ normal; no murmurs or gallops; PMI palpated at left fifth ICS, MCL

### Abd

Soft, NT/ND; bowel sounds normoactive

### Genit/Rect

Heme (–) stool

### Ext

No CCE; pulses 2+ throughout

### Neuro

A & O × 3, CN II–XII intact; speech is fluent; no motor or sensory deficit; no facial asymmetry; tongue midline

## Labs

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| | | |
|---|---|---|
| Na 137 mEq/L | Hgb 11.8 g/dL | *Fasting lipid profile* |
| K 4.8 mEq/L | Hct 35.1% | Chol 202 mg/dL |
| Cl 103 mEq/L | Plt 187 × $10^3$/$mm^3$ | LDL 121 mg/dL |
| $CO_2$ 21 mEq/L | WBC 7.9 × $10^3$/$mm^3$ | HDL 38 mg/dL |
| BUN 24 mg/dL | MCV 77 $\mu m^3$ | Trig 215 mg/dL |
| SCr 1.2 mg/dL | MCHC 29 g/dL | |
| Glu 98 mg/dL | Trop I 0.02 ng/mL × 2 | |

## ECG

Sinus rhythm, first-degree AVB, 50 bpm, old AWMI, no ST–T wave changes noted, QT 406 milliseconds

## Assessment

A 72-year-old man with poorly controlled angina on multiple medications, who is a poor candidate for angioplasty

# QUESTIONS

## Problem Identification

**1.a.** What drug-related problems appear to be present in this patient?

1.b. Could any of these problems potentially be caused or exacerbated by his current therapy?

## Desired Outcome

2. What are the goals of pharmacotherapy for IHD in this case?

## Therapeutic Alternatives

3.a. Does this patient possess any modifiable risk factors for IHD?

3.b. What pharmacotherapeutic options are available for treating this patient's IHD? Discuss the agents in each class with respect to their relative utility in his care.

## Optimal Plan

4. Given the patient information provided, construct a complete pharmacotherapeutic plan for optimizing management of his IHD.

## Outcome Evaluation

5. When the patient returns to the clinic in 2 weeks for a follow-up visit, how will you evaluate the response to his new antianginal regimen for efficacy and adverse effects?

### CLINICAL COURSE

Mr Palmer improved hemodynamically following a switch from diltiazem to amlodipine. However, due to continued frequent episodes of angina, his amlodipine was titrated to 10 mg once daily. He returned to cardiology clinic today stating that his angina frequency has improved somewhat on the maximum dose of amlodipine but is still bothersome to him. His cardiologist decided to add ranolazine 500 mg twice daily to his regimen in an attempt to further decrease his angina frequency.

## Patient Education

6. What information will you communicate to the patient about his antianginal regimen to help him experience the greatest benefit and fewest adverse effects?

### FOLLOW-UP QUESTION

1. What drug therapy changes would you recommend to avoid or minimize drug interactions with ranolazine?

### SELF-STUDY ASSIGNMENTS

1. Summarize the potential role of L-arginine in the treatment of chronic angina.

2. Describe the potential role of allopurinol in the treatment of chronic angina.

## CLINICAL PEARL

The COURAGE trial made major headlines in 2007 by showing that coronary stenting with optimal medical therapy is no better at preventing future coronary events than optimal medical therapy alone in patients with stable coronary disease, potentially saving the US health care system $5 billion a year.

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